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ABSTRACT

At present, there are no viable models of organizations in decline; all sociological and economic theories deal with growing, expanding organizations. However, as the statistical data from Illinois school districts indicate, declining enrollment and reduction in force are pressing problems. This statistical analysis contains data on population, tax bases, property appraisal, salary, pupil/teacher ratios, teacher/administrator ratios, and community types. These variables were correlated to determine the trends and patterns in enrollment decline in Illinois. Data from Chicago were not included. The authors recommend changes in Title I weighting to relieve urban districts undergoing enrollment decline and changes in student clientele. They assert that reductions in administrative staff should keep pace with both enrollment decline and teacher reduction. The teacher/administrator ratios discovered in this study could perhaps be used as guidelines for reduction in force. They suggest that the state provide financial assistance to districts hardest hit by declining enrollment and reduction in force. (DS)

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ENROLLMENT CHANGE AND EDUCATIONAL PERSONNEL CHANGE IN THE K-12 SCHOOLS OF ILLINOIS

A Supplement to the Report of the Illinois Task Force on Declining Enrollments in the Public Schools (Illinois Office of Education)

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EA 008 690

"Via ovum cranium difficilis est."
As liberally translated by Adlai
E. Stevenson: "The way of the egghead
is hard."

Background of the Study, Principal Research Questions, and Data Problems

Illinois like many other states is undergoing a decline in the number of pupils in its K-12 jurisdiction. This decline began in the 1972-73 school year and is projected to continue for at least fourteen years culminating in a twenty percent decrease by the school year 1985-86. In the spring of 1975, State Superintendent Joseph M. Cronin appointed a Task Force on Declining Enrollments chaired by Howard E. Brown to investigate aspects of this declining enrollment problem in Illinois. The Task Force issued its report in December, 1975. (1) The short turnaround time of the Task Force did not enable it to explore a number of aspects of the declining enrollment situation that would require the collection and analysis of data over a longer period of time. In answer to this need the Division of State Assistance, United States Office of Education, provided some funds to the Center for the Study of Educational Finance at Illinois State University to explore aspects of the declining enrollment situation that were not expected to be investigated in any great detail by the Illinois Task Force. This manuscript constitutes therefore both a report to the United States Office of Education and a supplement to the Illinois Task Force on Declining Enrollments.

The authors are indebted to Ms. Esther Tron of the Division of State Assistance, USOE, for first suggesting this project to us and for encouraging us throughout the duration of the project. We are also indebted to a number of professionals in the Illinois Office of Education who helped us secure the necessary data. These include Dr. Sally Pancrazio and Mr. David Ellsworth of the Department of Research and Statistics, Dr. Fred Bradshaw and Mr. Robert Pyle of the Department of Finance, Grants, and Reimbursements, and Mr. Marlin D. Clinton of

the Department of Compensatory Education. We also express our gratitude to Dr. Vernon C. Pohlmann of the ISU Sociology Department for his support, advice, and counsel. Ms. Carol Blake should be credited with putting our various tables and prose into readable form. The graphs were prepared by Miss Joanne Long. The authors alone, however, remain responsible for all errors of fact, interpretation, and opinion.

We began this investigation with more than a little hesitation. In the first place we could find no body of theory to act as a basis for the empirical work. Apparently social scientists have been so busy in past decades building concepts and models of organizational and economic growth that they ignored the possibility that public education could become an area of decline rather than growth. Patterns of organizational life for institutions in decline, decremental budgeting rather than incremental budgeting, staff reductions rather than staff recruitment, planning for fewer clients rather than planning for more clients, these are all painfully new realities for the educational practitioner and for the educational researcher. There are a few articles, in particular one by Goettel and Firestine,(2) that offer the start of some conceptual basis for studying public education in decline. In the main, however, the reader should be forewarned that this is largely an ad hoc or atheoretical piece of work, more in the nature of investigatory reporting than the hypothetico-deductive framework most researchers are accustomed to using.

Since we had no firm theoretical basis upon which to erect and test hypotheses, we fell back on the approach of simply asking some rather basic questions about this phenomena of enrollment decline, guided in part by concerns which the Task Force had previously raised. For example, a statement in the Task Force relating to the <u>variability</u> of enrollment decline vs. enrollment growth intrigued us:

> Generally enrollments are decreasing in central cities, older suburbs and small town/rural areas, but at <u>varying rates</u> (emphasis

> ours). With the exception of a few downstate counties, enrollments are continuing to increase in only those suburban counties in northeast Illinois adjacent to or near Cook County. (3)

This statement rests, at least partially, upon an analysis of enrollment change from the fall of 1971 to the fall of 1973 conducted on a county basis by Ellsworth. (4) We therefore took as our first questions: "What is the distribution among Illinois school districts of this enrollment decline and growth?" and "Where is this decline or growth occurring in the state?" The Task Force was also concerned with changes in professional staff that would occur because of the enrollment changes. In particular they were concerned with reductions in force of both teachers and administrators. Two parallel questions then are: "What is the distribution among Illinois school districts of decline or growth in professional staff?" and "Where is this decline or growth occurring in the state?" Finally there is the question that relates the enrollment and the staff change data: "What is the relationship between the decline or growth in enrollments and the decline or growth in professional staff?" This last concern can also be put in terms of teacher/administrator ratio studies and the Task Force clearly had these in mind:

> The Task Force recommends a state sponsored administrative staffing study as a service to boards, superintendents, and teacher groups in a time of declining enrollments. <u>This study could provide criteria to determine whether the administrative staff is off balance or not</u> (emphasis ours), and to recommend administrative staffing patterns based on district and attendance area enrollment and other factors. (5)

We decided, therefore, that we should make at least a preliminary investigation of changes in administrative staff as well as teaching staff.

Problems of data availability and the form in which data is kept are nothing new to researchers but seemed especially troublesome on this assignment. Although enrollment decline began to show at the state-wide level only in 1972-73, it seemed advisable to go back to 1970-71 as a base year for the enrollment change analysis with 1974-75 as the last year for which we could get data. We then faced a decision as to which time period would be appropriate for the collection of educa-

tional personnel change data. One could make a good case that the collection of staff change data should be lagged. That is, that enrollment decline or enrollment growth precedes staff changes. However, since the last staff change data available to us was 1973-74, this was not a viable option although we still prefer it and recommend it as soon as it is feasible to operate such a design. Since we could not have a lagged model, the next best option was to have a simultaneous model, that is, the data would be collected for the same time period for both enrollment change and staff change. Regrettably this also proved to be impossible since the data tapes for the 1970-71 school year proved to be damaged and unuseable. This situation could be corrected, but at greater cost in resources and time than we could afford. We therefore settled on a five-year time period contrast that is clearly not very satisfactory but the best that could be done under the circumstances: 1970-71 to 1974-75 (inclusive) for enrollment change and 1969-70 to 1973-74 (inclusive) for staff changes. We also found the staff change data to be extremely expensive to work with as far as machine time is concerned. This is true because the data is collected initially for retirement purposes on each individual staff member. The investigator must first aggregate to the district level before an analysis between districts can be attempted. The fact that Illinois still has over a thousand school districts of course continues to complicate all administrative research in the state, and to raise the cost of that research to very high levels. Other qualifications are raised elsewhere in the manuscript, but it should be clear that we regard this as only a first attempt to explore some facets of declining enrollment and in no sense is it definitive.

The Study Populations

The initial population was the 1,052 school districts in Illinois as of 1974-75 (442, K-12; 476, K-8; 134, 9-12). Preliminary investigation revealed that only a small number of high school districts had lost pupils during the period 1970-71 to 1974-75 and since we were primarily concerned with the effects of pupil decline, this population was dropped from the study. Thus after the first two tables, the study is restricted to the population of unit (K-12) districts and elementary (K-8) districts in the state. Since much of the focus of the study is on changes through time, specifically on changes in pupil population between 1970-71 to 1974-75, and changes in staff between 1969-70 to 1973-74, school district reorganizations and consolidations would affect these "change" figures. We identified 55 K-12 districts and 55 K-8 districts that had gone through extensive reorganizations during these time periods and dropped them from the study population. The study populations for the cross-sectional tables on staff and enrollment change are thus "near" populations omitting only reorganizations and consolidations. The largest school system in the state, Chicago, is unfortunately not included in these data. This is primarily due to the fact that Chicago reports its staff characteristics through a different retirement system and comparable staffing data was not available to us at the time of the study. Any extension of this study should definitely include Chicago. The "central city" school districts used in the cross-sectional analysis are therefore the other eight central city districts in Illinois, excluding Chicago. In the discriminant function section the decision was made to drop school districts with enrollment changes of less than five percent. This reduced the study populations to 335 elementaries and 237 unit districts which is approximately 70% of the initial elementary population and 54% of the unit population.

Sources of Data

Data for this study were primarily collected from two sources. Property Assessed Valuations, Educational Tax Rate, Percentage of Title I, Percentage of Teachers with Masters Degree and above, Average Salary, Type and Number of Teachers, Time Employed, and Enrollment were provided by the Illinois Office of Education. Data pertaining to percentage of families with income over $15,000, percentage of females between 14 to 44 years of age, percentage of minority relative to the total population in a given district were generated from the 1970 Federal Census of Housing and Population data which were transferred to the school district basis from the county and township basis by Dr. Vernon C. Pohlmann and his associates in 1974 and Illinois State University.

Definitions of Variables

Following are the descriptions of variables used in this study:

1. Property Assessed Valuations: This is the total dollar amount of the assessed property valuation, representing the level of district wealth under the current education funding system. The 1971 property assessed valuation per pupil was used in this study.

2. Educational Tax Rate: This is the tax rate for education purpose, which is different than the operating tax rate. The 1970-71 educational tax rate was used in this study.

3. Total District Enrollment: This includes all of the K-12 students reported in the fall housing record. The 1970-71 and 1974-75 district enrollments were included in this study so that the change of enrollment can be computed. District enrollment in 1970-71 was also inputed as a size variable in the discriminant analysis in which the characteristics of districts experiencing either declining or rising enrollment can be identified.

4. Percentage of Title I students: This variable is the number of students reporting their family income below the poverty level or on aid for dependent children. This data was drawn from the IOE annual statistical report under the Title I account. Both 1970-71 and 1974-75 Title I students were used to calculate the change of the ratio between number of Title I students and district enrollment.

5. Percentage of teachers with masters degree and above: This is simply the number of teachers receiving masters degree or above divided by the total number of teachers, not including administrators. The data was 1969-70 data.

6. Average Salary: This is the aggregate salaries divided by the number of teachers, again not including administrators. The 1969-70 data was used in this study.

7. Type of Personnel: There were 39 positions in 1969-70 and 45 positions listed in the teacher service record in 1973-74. For simplicity, all positions were classified into the six major groups. 1) Group 1 is the administrative group including the following positions: Superintendent of Educational Service Region, Assistant Superintendent of Educational Service Region, District Superintendent, Administrative Assistant, Assistant Superintendent, Business Manager, Elementary Principal, Assistant Elementary Principal, Junior High School Principal, Assistant Junior High School Principal, Assistant Senior High School Principal, Junior High School Dean, Senior High School Dean, Supervisor, Consultant, and Coordinator. 2) Group 2 is the regular teacher group which does not include music, art, and physical education teachers who require separate analysis. 3) Group 3 is a so-called "supporting teacher group" including all art, music and physical education teachers. 4) Group 4 includes only special education teachers. 5) Group 5 is supporting staff group, including Guidance Counselor, School Librarian, Audic-Visual Director, Speech Correction, School Psychologist, Social Workers, School Nurse, and Instructional TV. 6) Group 6 is a remedial teacher group, including remedial reading and Title I (ESEA) Teachers.

8. FTE (Full-time equivalent) Personnel Units: This study takes into consideration part-time teachers, administrators, supporting staff, etc., by multiplying the fraction of time employed by the number of months employed and then dividing by nine. This is an important consideration since personnel reductions can often take place in part-time staff prior to personnel reductions in full-time staff. We feel that studies of full-time staff only will tend to underestimate the extent of the staff reduction underway.

9. Percent of Families Income Over $15,000: This variable is the number of families reporting incomes of $15,000 or more divided by the total number of families reporting in 1970 census. This variable is highly correlated with percent of people receiving four years of college education or more in the preliminary check of variables.

11. Percent of Females Between 14 and 44 years of age: This variable is the number of females reporting ages between 14 and 44.

12. Percentage of Minority to the Total Population: This variable is the number of nonwhite relative to the total district population.

13. Pupil/Teacher Ratio: This is the number of pupils divided by the number of teachers, regardless of what type.

14. Teacher/Administrator Ratio: This is the number of FTE teachers divided by the number of administrators.

15. Community types were defined as follows: The school district serving the major city of every standard metropolitan statistical area, except in this particular study, the city of Chicago, was assigned to the group of central cities. All other districts in the SMSA except the central city were designated as suburban. Suburban districts were then dichotomized into either high growth or stable (slow growth) suburbs according to the enrollment changes between 1964-65 and 1973-74. The median percentage enrollment change of all suburban school districts was computed. Those suburban districts with percentage enrollment change higher

than the median were classified as high growth suburbs; those below the median were classified as slow growth suburbs. School districts serving a city with a population of 10,000 or more, but not located in an SMSA, were designated independent city school districts. All school districts outside of SMSAs, other than the independent city districts, were classified as rural. Similar, though not identical classifications have long been used in school finance research at the University of Wisconsin. (6)

Aggregate Changes in Enrollment and Staff

Tables one and two present aggregate data for the study population with regard to enrollments and three categories of staff: regular teachers, special teachers and supporting staff, and administrators. In these tables, and elsewhere throughout this report, data is presented according to the organizational type of the district: unit (K-12), elementary (K-8), and high school (9-12). This complicates the analysis, but we have discovered no satisfactory way to merge these populations when dealing with fiscal or fiscal related variables in Illinois. As can be seen from table one, enrollment decline during the five-year period under observation was primarily a phenomena of the elementary districts, with less decline in the unit districts and with actual overall growth still being registered in the high school districts. As mentioned in the study population section, we discontinued any analysis of the high school population after the first two tables

TABLE 1

CHANGE IN ENROLLMENTS

Type	Students in 1970-1971	Students in 1974-1975	Change	% of Change
Unit	803,129	774,263	-28,866	- 3.594%
High School	526,326	566,184	+39,758	+ 7.022%
Elementary	247,674	272,814	-25,140	-10.150%

ERRATA: Table 1 should read as follows.

TABLE 1

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since we were primarily interested in the effects of enrollment decline rather than enrollment growth.

Table two gives us our first indication that staff categories have not changed at the same rates. Administrators in unit districts increased by approximately nine percent from 1969-1970 to 1973-74, while "regular" teachers decreased by less than one percent. Similarly in the elementary schools, administrators increased by over ten percent while regular teachers decreased by about one percent. In the high schools, which were still undergoing considerable growth during this time period, both teachers and administrators increased, but the rate of administrator growth was over twice as great as the rate of teacher growth. The personnel category showing the greatest growth during this five-year time period was special teachers and supporting staff. This was particularly true in the elementary and unit districts, with somewhat less growth registered at the high school level. The lion's share of this growth can be accounted for by changes in the Illinois statutes requiring greater educational benefits for handicapped children.

The growth in administrators illustrated in table two and elsewhere throughout this report may be overstated in the sense that our data did not allow us to separate out administrators of special education teachers or administrators of vocational teachers who might have been hired during this time period to supervise the additional teachers being added in these special areas. We doubt, however, that correction for this factor would change our overall impression that administrators survived this period better than teachers since we do know that our data does not contain administrators of special education programs or vocational programs who work in the "special agreement" or "joint agreement" districts. That is, our data is only for the regularly constituted unit or dual districts of the state and not for the special intermediate districts created for vocational and special

TABLE 2

CHANGE IN STAFF

Type	Unit				High School				Elementary			
	1969-1970	1973-1974	Change	%	1969-1970	1973-1974	Change	%	1969-1970	1973-1974	Change	%
Regular Teachers	33,022	32,781	-221	-0.669%	11,991	13,157	+1,166	+9.724%	21,491	21,283	-207	-0.963%
Special Teachers & Supporting Staff	5,863	9,474	3,611	61.589%	1,706	2,379	673	39.449%	4,559	7,470	2,911	63.852%
Administrators	3,422	3,731	309	9.029%	1,084	1,322	238	21.956%	2,312	2,560	248	10.726%

educational purposes. We shall follow this line of inquiry concerning the rate of change in personnel categories when we analyze the state by regions within the state and by community types. First, however, we wish to comment on the distributional patterns of enrollment change and personnel change that can be found in the state at large.

Distributions of Enrollment and Staff Changes in Illinois

Charts one through nine present information on enrollment and staff changes in Illinois. Chart one shows the distribution of percentage changes in enrollment by district, both growth and decline, for unit districts and elementary districts for the period 1970-71 through 1974-75 inclusive. Enrollment changes of less than plus or minus five percent per district over the five-year period have been omitted since changes of this magnitude could be due to very localized events or even to random fluctuations in the data. The reader is reminded that all the charts in this section are for the study population and not for the complete population of districts in Illinois. Chart two shows the distribution of districts with enrollment declines greater than five percent in unit districts and chart six shows the distribution of districts with enrollment declines greater than five percent in elementary districts. Charts, three, four and five present personnel change data (1969-70 to 1973-74) for those unit districts which experienced enrollment declines in the period 1970-71 to 1974-75. Similarly charts seven, eight, and nine present personnel change data for those elementary districts which experienced enrollment declines in the period 1970-71 to 1974-75.

The data of chart one clearly indicate the danger of taking state averages to be descriptive of situations in individual school districts. For this five-year period almost 30% of the elementary districts were still registering enrollment increases and just over 25% of the unit districts were also still in the

enrollment "growth" category. That there will be fewer of these favored districts at the end of this decade is a certainty but local and regional conditions will still permit a few Illinois school districts to retain their "growth" characteristics. By contrast the 110 elementary districts and the 30 unit districts experiencing enrollment declines greater than 15% over the five-year period are probably starting to reveal the symptoms of the enrollment decline disease described in the Task Force report: underutilized classrooms and buildings, either actual or impending reductions in professional staff, reductions in state aid, etc. The situation of the elementary districts experiencing enrollment declines greater than 25% must be especially serious.

Some of the extreme gain or enrollment loss values shown in these distributions are probably due to loss or gain of territory in reorganized districts during the five-year period. Although, as we mentioned, we did drop all reorganized districts we could identify, the gains or losses of portions of territory in some of the districts remaining in the study population could still account for some of the extreme fluctuations in the data. As expected, the variability is greater in elementary districts than in unit districts. This is true for at least two reasons. First, the basic demographic changes underway have not yet reached the high school levels of unit districts and second, elementaries are generally smaller in geographic size than units, and smaller geographic areas almost always demonstrate greater variability on a wide range of variables in human ecology.

Chart three shows gains of teachers in the unit districts as well as losses of teachers. The number of districts losing teachers is greater than the number of districts gaining teachers. A part of the explanation for both gains and losses of teachers being shown in unit districts with declining student population lies in the different time periods we were forced to use for enrollment change versus staff change. However, more of the explanation lies in the regional differences

which do not show in state-wide distributions, and which are explicated later in this paper. Chart four is interesting in that it does not show the loss of administrators that might be expected in unit districts with declining enrollments. Some unit districts did decrease administrators but far more districts added administrators during the period 1969-70 to 1973-74. Chart five clearly illustrates that even in unit districts undergoing enrollment decline it was necessary to add special education teachers and supporting staff and that this addition was greater than 15% in the vast majority of districts. The differences between chart seven and chart three probably lie in the fact that chart three registers the increases in teacher staff necessary to service the enrollment increases at the high school level in the unit districts. No such gains are possible in chart seven. Chart seven is interesting nevertheless in revealing that there were still 41 elementary school districts that were able to increase their teachers during a period of declining enrollments. Again, a part of this explanation lies in regional variations that are not revealed in overall state distributions. The twenty-three elementary districts experiencing teacher reductions greater than 20% must be experiencing personnel problems of a much more serious nature than the average elementary district in the state. Chart eight, like chart four, reveals that districts experiencing enrollment decrease did, nevertheless, add administrators, although the addition of administrators is somewhat lower for elementary districts than for unit districts. Chart nine, like chart five, again reveals the increase in special education teachers and supporting staff even in districts with generally declining enrollments.

Enrollment and Staff Changes by Regions and by Community Types

With regard to unit districts, table three shows that the northwestern portion of the state is the only region with an increase in enrollment during the period 1970-71 to 1974-75, while the central-eastern portion of the state shows

TABLE 3

ENROLLMENT CHANGE IN UNIT DISTRICTS BY REGION

Region	Total Enrollment 1970-1971	Total Enrollment 1974-1975	Change of Enrollment	% of Change
1 Northeastern	127,087	131,621	4,534	3.5676%
2 Northwestern	168,602	160,224	-8,378	-4.9679%
3 Central-Western	155,521	149,129	-6,392	-4.1183%
4 Central-Eastern	148,701	139,077	-9,624	-6.4720%
5 Southwestern	140,535	133,200	-7,335	-5.2193%
6 Southeastern	62,683	61,012	-1,671	-2.6658%

the greatest percentage decrease for this same time period. With regard to elementary districts, table four shows that the central-eastern portion of the state again shows the greatest percentage loss of students with smaller losses in the central-western and the southeastern regions. It is the southeastern region of the state, designated region #6 in the state coding system, that shows the smallest percentage enrollment decline by both unit districts and elementary districts in the study population, while the central-eastern region of the state, designated region #4, shows the largest percentage losses of students.

These regional differences in enrollment change are apt to have quite different fiscal implications. Region #4 is generally a wealthy property valuation area (primarily agricultural) and the loss of pupils in this region is apt to drive up the per pupil valuations considerably, thus resulting in a loss of state aid to this region. By the same reasoning, region #6 is generally a poor property valuation region and the much smaller loss of pupils here should not greatly raise

TABLE 4

ENROLLMENT CHANGE IN ELEMENTARY DISTRICTS BY REGION

Region	Total Enrollment 1970-1971	Total Enrollment 1974-1975	Change of Enrollment	% of Change
1 Northeastern	463,121	432,159	-30,962	- 6.6855%
2 Northwestern	34,601	31,119	- 3,482	-10.0633%
3 Central-Western	11,482	10,946	- 536	- 4.6682%
4 Central-Eastern	15,841	13,751	- 2,090	-13.1936%
5 Southwestern	20,239	18,266	- 1,973	- 9.7485%
6 Southeastern	20,687	20,040	- 647	- 3.1276%

their property valuations per pupil. The continued growth of pupils in the unit districts of region #1 probably stabilizes valuations per pupil there or may even cause them to drop. However, this region is also, on the whole, rather wealthy in property valuation terms, so elementary districts in region #1, unlike unit districts in that region may be experiencing valuation per pupil problems similar to unit districts in region #4, that is, a general upward drift of their valuations per pupil that will cost them state aid.

These tentative hypotheses should be directly tested by analyzing changes in property valuations per pupil and state aid per pupil on a regional basis through time. Changes in property valuations per pupil do depend of course upon both changes in pupils and changes in the property valuations themselves. The above reasoning assumes that region to region pupil changes are more likely than region to region valuation changes with the passage of time. In the short run this seems acceptable; however, the redevelopment of the coal industry in region #6 over a longer period of time might bring this assumption into question.

Tables five and six show enrollment changes by community types. With regard to unit districts, the largest percentage losses are registered in the central cities. The reader should tear in mind that these data do not include the city of Chicago, that is, the central cities are the other eight largest cities within the nine standard metropolitan statistical areas within Illinois. The slow growth or stable suburbs show almost as great a loss. The high growth suburbs indicate that they are still the unit districts with the greatest amount of pupil growth in the period 1970-71 to 1974-75 and the rural unit districts have clearly the lowest percentage of student loss. With regard to elementary districts, the slow growth suburbs show the greatest percentage of student loss but the independent cities are not far behind. Again, as in the case of unit districts, the rural elementaries do not show nearly as much pupil loss. These data suggest that pupil loss is more of an urban problem than a rural problem, at least in percentage loss terms. There can be regional variations on this theme, however, since region #4 is not primarily urban in nature. Region #6 is primarily rural in nature and the low rural percentage losses reinforce the regional findings.

Again, there are different fiscal implications resulting from these differences in pupil losses between community types. Slow growth suburbs do not

TABLE 5

ENROLLMENT CHANGE IN UNIT DISTRICTS
BY COMMUNITY TYPE

Community Type	Enrollment 1970-1971	Enrollment 1974-1975	Change of Enrollment	% of Change
Central City	168,252	153,527	-14,725	-8.7523%
Independent City	84,883	81,026	- 3,857	-4.5439%
High Growth Suburb	155,340	160,280	4,940	3.1801%
Slow Growth Suburb	95,981	87,280	- 8,073	-8.4142%
Rural	264,235	255,982	- 8,253	-3.1233%

TABLE 6

ENROLLMENT CHANGE IN ELEMENTARY DISTRICTS
BY COMMUNITY TYPE

Community Type	Enrollment 1970-1971	Enrollment 1974-1975	Change of Enrollment	% of Change
Independent City	20,887	18,227	- 2,660	-12.7352%
High Growth Suburb	180,842	186,174	5,332	2.9484%
Slow Growth Suburb	264,789	224,836	-39,953	-15.0886%
Rural	46,195	44,653	- 1,542	- 3.3380%

generally receive large amounts of state aid since they are often relatively high on property valuations per pupil. The same is true for at least some of the rural areas of the state although rural areas in the southern part of the state are generally much poorer than rural areas in the central part of the state. On the other hand urban districts receive a considerable amount of state aid, especially after the reforms of the Illinois general purpose grant-in-aid system in the summer of 1973. (7) If pupil losses are higher in urban areas than in rural areas, then urban superintendents can expect their state aid to be endangered by this loss of pupils. Also urban superintendents may find that they are facing a problem similar to superintendents in the central-eastern portion of the state, that is, the larger pupil losses are driving up their per pupil valuations at so fast a rate that their state aid is endangered. On this showing it would seem that both urban superintendents and superintendents of some property wealthy districts in the central-eastern portion of the state should be the most active proponents of

introducing factors into the state aid formula to "cushion" the enrollment decline. The Task Force outlines several of these factors and others are described in publications of both the Education Commission of the States and the National Conference of State Legislatures. (8)

Tables seven and eight show personnel changes by region. Since the central-eastern region of the state was shown to have the greatest percentage loss of pupils, one might expect that this region would also have the greatest reduction in professional personnel. This is confirmed by tables seven and eight. Furthermore, the central-eastern portion of the state is the only region to show an actual decrease in the number of administrators for unit districts and a relatively small increase of administrators in elementary districts. The southeastern region, which was shown to be relatively less affected by pupil loss, shows an actual gain for teachers in elementary districts and a modest loss for teachers in unit districts. The region one unit school districts, the only regional-organizational combination to show pupil increase, also shows increases in the teaching staff and very large increases in administrators.

Tables nine and ten show personnel changes by community type. The higher percentage pupil losses in central city unit districts would lead us to expect the largest reductions in the teacher force to occur in the central city districts and that is confirmed by table nine. One notes also that central city unit districts and independent city elementary districts also register a decline in administrators. By contrast, while the teacher force has been reduced in the slow growth or stable suburbs,the administrators have actually been increased in that community type. It should be noted that these slow growth suburbs are often rather wealthy in a property valuation sense. The smaller decline of pupils in rural areas would not be expected to cause much of a decline in professional staff and that seems to be the case. The teacher force in rural unit districts was almost constant

TABLE 7

STAFF CHANGE IN UNIT DISTRICTS BY REGION

Region	Total Administrators 1969-1970	Change of Number of Administrators to 1973-1974	% of Change	Total Number of Regular Teachers 1969-1970	Change of Number of Regular Teachers to 1973-1974	% of Change
1 Northeastern	379	120	31.6623%	4,838	399	8.2472%
2 Northwestern	567	108	19.0476%	6,778	-103	-1.5196%
3 Central-Western	572	66	11.5385%	6,463	-115	-1.7794%
4 Central-Eastern	669	-29	-4.3348%	6,233	-254	-4.0816%
5 Southwestern	519	30	5.7803%	5,435	-103	-1.8951%
6 Southeastern	288	14	4.8611%	2,627	-45	-1.7129%

TABLE 8

STAFF CHANGE IN ELEMENTARY DISTRICTS BY REGION

Region	Total Administrators 1969-1970	Change of Number of Administrators to 1973-1974	% of Change	Total Number of Regular Teachers 1969-1970	Change of Number of Regular Teachers to 1973-1974	% of Change
1 Northeastern	1,585	222	14.0063%	16,998	-178	-1.0472%
2 Northwestern	125	- 5	-4.0000%	1,267	- 34	-2.6835%
3 Central-Western	36	3	8.3333%	412	13	3.1553%
4 Central-Eastern	53	1	1.8867%	620	- 35	-5.6452%
5 Southwestern	75	26	34.6666%	702	4	0.5698%
6 Southeastern	104	0	0.0000%	757	24	3.1703%

during the 1969-70 to 1973-74 period, while rural administrators and elementary teachers increased.

TABLE 9

STAFF CHANGE IN UNIT DISTRICTS BY COMMUNITY TYPE

Community Type	Total Administrators 1969-1970	Change of Number of Administrators to 1973-1974	% of Change	Total Number of Regular Teachers 1969-1970	Change of Number of Regular Teachers to 1973-1974	% of Change
Central City	608	-13	-2.1382%	6,534	-612	-9.3664%
Independent City	365	5	1.3698%	3,398	- 36	-1.0594%
High Growth Suburb	500	114	22.8000%	6,005	380	6.3281%
Slow Growth Suburb	366	44	12.0219%	3,853	- 97	-2.5175%
Rural	1,034	141	13.6364%	11,246	42	0.3735%

TABLE 10

STAFF CHANGE IN ELEMENTARY DISTRICTS BY COMMUNITY TYPE

Community Type	Total Administrators 1969-1970	Change of Number of Administrators to 1973-1974	% of Change	Total Number of Regular Teachers 1969-1970	Change of Number of Regular Teachers to 1973-1974	% of Change
Independent City	87	-13	-14.9425%	778	- 52	- 6.6838%
High Growth Suburb	551	180	32.6678%	6,160	691	11.2175%
Slow Growth Suburb	963	50	5.1921%	10,314	-1,122	-10.8784%
Rural	193	18	9.3264%	1,665	121	7.2673%

With respect to the reduction of administrative staff, there may be some kind of threshold effect at work here. At least with respect to the unit districts it was only in the central cities and in the central-eastern region where, in both cases, there had been a respectable amount of both pupil decline and teacher reduction that administrator reductions occurred. There could also be some type of time lag at work here. Perhaps teacher reductions have to reach some critical mass and perhaps they have to have occurred at some previous point in time before administrator reductions occur. The data presented in this paper by no means proves these hypotheses, but it does at least suggest that they ought to be investigated. There may also be some legal aspects of administrator reduction. Administrators do often hold seniority as teachers. If teacher reductions are occurring, they may have to reach certain levels before administrators are "broken to the ranks" and replace less senior teachers. It is clear that we need to know much more about the effects of pupil decline on the administrative staff.

Changes in Teacher/Administrator Ratios

Changes in teachers and changes in administrators also result in shifts in the teacher/administrator ratios. Data on these shifts by region and by community type is presented in tables eleven and twelve. The first column indicates the change in teacher/administrator ratios between 1973-74 and 1969-70 when the teachers do not include the special education teachers and the supporting staff. The second column indicates the change when special education teachers and supporting staff are combined with regular teachers. With regard to regular teachers all values are negative, indicating that there were more administrators per teacher in all categories in 1973-74 than in 1969-70 with the single exception of the elementary districts in the southeastern region where the number of administrators per teacher decreased. Some of these increases, however, are quite small, particularly in the case of independent city elementary districts and independent city unit districts, also central city unit districts and central-western elementaries.

TABLE 11

CHANGE IN TEACHER/ADMINISTRATOR RATIOS
FOR UNIT DISTRICTS

	The Mean of Change of the Ratio Between Regular Teachers and Administrators	The Mean of Change of the Ratio Between Total Number of Teachers and Administrators
Region		
1 Northeastern	-1.806	-0.523
2 Northwestern	-2.016	-1.205
3 Central-Western	-1.608	-1.138
4 Central-Eastern	-1.063	-0.362
5 Southwestern	-1.442	-0.739
6 Southeastern	-1.240	-0.297
Community Type		
Central City	-0.813	0.375
Independent City	-0.409	0.702
High Growth Suburb	-1.188	-0.325
Slow Growth Suburb	-2.136	-1.395
Rural	-1.635	-0.941

Many of these increases in administrators per teacher disappear when the number of teachers is expanded to include the special education teachers. Among the unit districts, increases in administrators per teachers are still noticeable in independent cities and in the southwestern region. Smaller decreases in administrators per teacher are also observable in urban units both central city and independent city and in rural elementaries. Ratio studies of this type are of course particularly sensitive to just what kinds of personnel are included in the definition of "administrators" and "teachers." (9) However, there is enough evidence here to suggest that shifts between 1969-70 and 1973-74 were generally more favor-

TABLE 12

CHANGE IN TEACHER/ADMINISTRATOR RATIOS
FOR ELEMENTARY DISTRICTS

	The Mean of Change of the Ratio Between Regular Teachers and Administrators	The Mean of Change of the Ratio Between Total Number of Teachers and Administrators
Region		
1 Northeastern	-1.617	-0.375
2 Northwestern	-0.496	0.257
3 Central-Western	-0.263	0.090
4 Central-Eastern	-0.787	-0.253
5 Southwestern	-0.604	-0.259
6 Southeastern	0.725	1.530
Community Type		
Central City	--	--
Independent City	-0.161	1.365
High Growth Suburb	-1.538	-0.494
Slow Growth Suburb	-1.883	-0.731
Rural	-0.223	0.305

able to administrators than to teachers. The Task Force urged state-wide teacher/administrator ratio studies and the limited data we were able to provide here supports that recommendation.

Further Analysis of "Special Teachers and Supporting Staff"

Table two showed rather large percentage increases for the personnel category labled, "special teachers and supporting staff," for the period 1969-70 to 1973-74, e.g. almost 62% for unit districts and 64% for elementary districts. It is tempting to jump to the conclusion that almost all of this personnel growth was due to changes in requirements concerning the education of handicapped children.

Much of it certainly was, however, tables thirteen and fourteen show a breakdown of these data into three smaller personnel groupings: supporting teachers, special education teachers, and supporting staffs, by region and by community type for unit districts only. Personnel "categories" are never as homogeneous as one might like, and this is certainly the case here. "Supporting teachers" for example include art and music teachers, but also physical education teachers and coaches. Perhaps this is acceptable, but "supporting staff" is a more mixed bag containing speech correction and school psychologists, two groups that might well be included under "special education," as well as guidance personnel, librarians, etc. Still we are able to make some observations in spite of these limitations.

First, it is clear that the "line" or "regular" special education teachers cannot account for all the observed growth in the larger personnel category. Only in the unit districts of region one, where we have repeatedly observed growth in this study, do we get increments in the high 60's. The percentage growth of special education teachers in the central part of Illinois, in the urban areas, and in the slow growth suburbs, is less than half of the percentage growth in the larger personnel category. By contrast, supporting staffs more than doubled in the suburbs and in the rural districts. Relatively speaking, the central cities again show growth rates smaller than in other categories. Apparently high growth suburbs added a respectable number of music teachers, art teachers, coaches, etc., during the 1969-70 to 1973-74 period. The central cities, however, were unable to increase personnel in these categories at the same high growth rate. The differential growth in special education teachers around the state is interesting. Although it is beyond the scope of this study to explore the matter, it seems clear that the northern part of the state was adding special education teachers at a more rapid rate than the central part and the southwestern part. This raises the question of whether there is something about the funding system for special education that

TABLE 13

CHANGE IN SUPPORTING TEACHERS, SPECIAL EDUCATION TEACHERS AND SUPPORTING STAFFS BY REGIONS

Region	Supporting Teachers				Special Education Teachers				Supporting Staffs			
	1969-1970	1973-1974	Change	% of Change	1969-1970	1973-1974	Change	% of Change	1969-1970	1973-1974	Change	% of Change
1 Northeastern	263	524	261	99.23	317	533	216	68.14	172	473	301	175.00
2 Northwestern	316	607	291	92.08	401	614	213	55.18	292	616	324	110.98
3 Central-Western	378	504	126	33.33	456	548	92	20.18	359	633	274	76.32
4 Central-Eastern	313	510	197	62.94	452	591	139	30.79	336	576	240	71.43
5 Southwestern	271	438	167	61.62	392	483	91	23.21	260	510	250	96.15
6 Southeastern	105	200	95	94.48	156	238	82	52.56	145	337	192	132.41

TABLE 14

CHANGE IN SUPPORTING TEACHERS, SPECIAL EDUCATION TEACHERS AND SUPPORTING STAFFS BY COMMUNITY TYPE

Community Type	Supporting Teachers				Special Education Teachers				Supporting Staffs			
	1969-1970	1973-1974	Change	% of Change	1969-1970	1973-1974	Change	% of Change	1969-1970	1973-1974	Change	% of Change
Central City	320	462	142	44.38	535	696	161	30.09	475	883	408	85.89
Independent City	128	250	122	95.31	266	369	103	38.72	261	483	222	85.06
High Growth Suburb	302	616	314	103.97	410	621	211	51.46	248	570	322	129.84
Slow Growth Suburb	211	316	105	49.76	304	360	56	18.42	158	324	166	105.06
Rural	601	999	398	66.22	579	845	266	45.94	394	826	432	109.64

allows the north to prosper more in this specialized area of education than other parts of the state. Perhaps the recent investigations of special education funding sponsored by the Illinois School Problems Commission and the Illinois Office of Education should be expanded to investigate staff changes, as well as the more orthodox financial aspects of special education funding. (10)

Determinants of Enrollment Decline or Increase

For the purpose of finding the school district characteristics which discriminate most effectively between declining enrollment school districts and rising enrollment districts, two group discriminant analysis was used. The fundamental principle of this technique is to weight the different measures of the criterion groups so as to maximize the ratio of between groups sum of squares variance to within group sum of squares variance. In this study, two groups of school districts were formed. One consists of declining enrollment school districts which experienced declining enrollment by greater than or equal to 5% within five years during the period 1970-71 to 1974-75. The other consists of rising enrollment school districts which experienced rising enrollment by greater than or equal to 5% within five years during the period 1970-71 to 1974-75. Various characteristics of school districts were selected including property assessed valuation per pupil (1971), size of school districts measured by 1971 district enrollment, 1971 operating tax rate, percentage of Title I eligible student change, percentage of family income over $15,000, percentage of teachers receiving the masters degree, average salary of teachers, pupil/teacher ratio, and percentage of nonwhite to district population. Stepwise discriminant analysis was applied with these characteristics. Wilk's Lambda was selected as a criterion which determines the entrance of the variables into the analysis. The statistical test of the significance of the entire discriminant function is also provided by Bartlett's V statistic, which approximates the Chi-Square distribution.

The results of the discriminant function for unit districts are shown in table fifteen. Bartlett's V statistic was found to be significant beyond the .01 significance level as indicated by a chi-square of 16.812 for 6 degrees of freedom. The function therefore accurately separates the declining and the rising enrollment districts. The power of the discrimination is seen in table sixteen, the confusion matrix for this function. Like regression coefficients, the discriminant function coefficients do not indicate the relative importance of each variable when the variance changes from variable to variable. The relative magnitude of importance, thus, should be calculated by multiplying the discriminant

TABLE 15

DISCRIMINANT FUNCTION FOR ENROLLMENT CHANGES:
UNIT DISTRICTS

Variable	Discriminant Coefficient	Standardized Discriminant Coefficient
1. Operating Tax Rate 71	0.09022	0.22155
2. Size	- 0.00009	-0.43377
3. Change of % of Title I (Pertil)	- 5.25675	-0.40334
4. Rich (% of Families Income Over $15,000)	7.71975	0.54725
5. Puptea (Pupil Teacher Ratio)	-62.13812	-0.48973
6. Female (Female Age Between 15 and 44)	10.26519	0.42611

Wilks' Lambda = 0.8761
Bartlett's V = 30.687
Degree of Freedom = 6

coefficient by the standard deviation of the corresponding variable to produce "standardized" discriminant coefficients, which are then interpreted the same as Beta weights in ordinary least squares regression analysis.

Table fifteen indicates that the best discriminant variable for unit districts is wealth, measured as the percentage of families with income over $15,000 per year. The sign of the coefficient is positive, indicating that the greater the percentage of families over $15,000 the greater the likelyhood that the unit district will be in the rising enrollment group. We interpret this to be the effect of continued enrollment growth in the generally wealthier suburban districts around Chicago. A part of this phenomena has already been indicated in the growth characteristics of unit districts in the northwestern region of the state, a fact which is demonstrated in several of the cross-classification tables shown elsewhere in this report. This suburbanization element is also present in the numbers of females between the ages of 15 and 44, since they are also present in greater numbers in the suburban areas which are still showing some growth, at least during the period 1970-71 to 1974-75.

TABLE 16

CONFUSION MATRIX FOR UNIT DISTRICTS

Actual Group	N	Predicted Group	
		Group #1	Group #2
Group 1: Declining Group	63	38 (60.3%)	25 (39.7%)
Group 2: Increasing Group	174	48 (27.6%)	126 (72.4%)
Total	237	86	151

Percentage of grouped cases correctly classified is 69.20%.
CHI SQUARE = 34.94

The change of percentage of Title I eligible students is one of the more interesting variables in the study. The findings support one of the very few hypotheses advanced in this entire area of declining enrollment studies. Goettel and Firestine advanced the notion that districts with declining enrollments may also be districts with increased percentages of Title I eligibles. (11) Basically they had in mind urban school districts and the problem of the flight of middle class families to the suburbs. (12) However, the possibility exists that this relationship is true throughout the state. The data for both unit districts in table fifteen and for elementary districts in table seventeen support the Goettel-Firestine hypothesis, at least for Illinois during the 1970-71 to 1974-75 period.

TABLE 17

DISCRIMINANT FUNCTION FOR ENROLLMENT CHANGES:
ELEMENTARY DISTRICTS

Variable	Discriminant Coefficient	Standardized Discriminant Coefficient
1. AVPP 71	- 0.00001	-0.37356
2. Size	- 0.00018	-0.33877
3. Pertil	- 4.45890	-0.38634
4. Rich	1.28633	0.21737
5. PCAD71	- 2.08218	-0.20073
6. PUPTEA	-38.93816	-0.36722
7. Female	4.47883	0.22167
8. Average Salary	- 0.00051	-0.44822

Wilks' Lamoda = 0.7872
Bartlett's V = 78.705
Degree of Freedom = 8

TABLE 18

CONFUSION MATRIX FOR ELEMENTARY DISTRICTS

Actual Group	N	Predicted Group	
		Group #1	Group #2
Group 1: Declining Group	98	80 (81.6%)	18 (18.4%)
Group 2: Increasing Group	237	68 (28.7%)	169 (71.3%)
Total	335	148	187

Percentage of grouped cases correctly classified is 74.33%.
CHI SQUARE = 79.31

This hypothesis has very definite fiscal implications. As Bothwell (13) has indicated, there are four states (Illinois, Pennsylvania, Ohio, and Minnesota) that currently provide a weighting in their general grant-in-aid formulas for concentrations of Title I pupils. Some states only provide a constant weighting for the number of Title I eligible students but these four states provide a variable weighting, that is, the districts with the higher percentages of Title I students receive more state funds than the districts with the lesser percentages of Title I students. If future research confirms this relationship between decline of students and increase of Title I concentration, then states like Illinois, Pennsylvania, Ohio, and Minnesota may have built better than they knew when they introduced this concentration notion into their grant-in-aid formulas. In effect, the concentration factor becomes an "enrollment decline" cushion for urban districts, although

it has never, to our knowledge, been defended on those grounds. There is a complication here of different definitions of Title I eligibility at different points in time. (14) However, the fiscal implications will remain the same, whether the Title I count is changing due to actual population shifts, or due to definitional problems, or, more likely, to both. This is obviously an area for more research.

In contrast to the effects of the Title I concentration factor in grant-in-aid formulas, a tax effort factor may work in an opposite direction. At least for unit districts, the higher the tax rate, the greater the probability of being included in the increasing enrollment group. This raises a very important policy question. It has been alleged that all "reward for effort" provisions in grant-in-aid formulas, and indeed all "district power equalization" schemes are "growth oriented" rather than "decline oriented" and the positive sign of the tax effort variable in table fifteen provides some support to this argument. On the other hand, tax effort was apparently not so closely related to enrollment changes in elementary districts since the tax rate is not a statistically significant variable in table seventeen, the elementary discriminant function. If increasing effort is associated with increasing enrollments, and if increasing enrollments are primarily located in wealthier suburbs, then DPE systems may encounter a problem of flowing state money into wealthier districts, that is, over a longer period of time they may prove to be counter-equalizing. In the research that Yang has conducted on the short-range effects of the DPE system adopted in Illinois, Michigan, and Kansas in 1973, this has <u>not</u> proven to be the case. (15) However, we have no longer term studies of DPE systems, and therefore no sure way of knowing what the longer term effects of these systems may be. This again appears to be an area needing further investigation; a fact we have constantly pointed out in other Center publications.

The results of the discriminant function for elementary districts are not greatly different than for unit districts. Assessed valuation does enter into the elementary function, whereas it did not in the unit district function. The sign is negative indicating the wealthier the district the greater the likelihood of such a district being in the declining group. This may be the result of some relatively wealthy, but low growth rate or stable suburbs showing enrollment decline. While the relationships of the individual discriminant variables are roughly the same, the general power of the function to discriminate between declining and rising enrollments is greater for elementary districts than for unit districts, as seen in table eighteen.

The relationship of teachers salary to enrollment change is also quite an interesting variable. The reader will note that with regard to elementary districts the higher the average salary the greater the probability of the district being in the declining enrollment group. This empirical relationship is capable of more than one interpretation. It could simply be a further reflection of the urban decline that is present in most of these data, since urban districts with their greater rates of student decline also do have the higher teacher salaries. However, there is another interpretation possible. If pupil decline is accompanied by the release of less senior members of the faculty, then the higher salaries of the remaining more senior members of the faculty will cause the average salary of the district to drift upward. Total salary cost might decline, but the average salary will appear larger. Put another way, only the rising enrollment districts are able to hire at the bottom of the salary schedule in any great numbers, and the rest of the districts are left with nothing but early retirements and very very scarce changes of positions to hold down their average teacher salaries. This second interpretation appears more intuitively satisfying, but obviously this is yet another area that needs further exploration.

Correlates of Teacher Reduction

Although we began this study with a focus upon declines in pupil enrollments, by the conclusion of the work we had become more interested in the related phenomena of reductions in educational staff. It therefore seemed appropriate, as a final analytical task, to look into some correlates of reduction of the teaching force. Table nineteen reports the results of a step-wise linear regression analysis using the percentage reduction in regular teachers as a dependent variable, and the same variables used in the discriminant function analysis of enrollment decline as the dependent variables. The prediction power of the equation is only modest, e.g., roughly 30%, however, it is statistically significant. The prediction power for an elementary district model was much lower and was not statistically significant. These low prediction powers could be due to many factors. Probably the most important is the lack of any well established theoretical model to use as the base for the selection of good independent variable to predict teacher reducations. As mentioned at the beginning of this paper, research on staff reduction is much more a matter of hunch and intuitive reasoning than deduction from any well established models. There are also doubtless technical problems of curvilinearity, multicolinearity, and interaction effects in these regressions which are almost completely unexplored. Still even these exploratory probes do yield a few interesting relationships.

First, one notes that the best predictor of percentage reduction of teachers is the percentage of minority population present in the district population. The larger the minority population, the greater the reduction of teachers. This finding is hardly going to thrill civil rights groups. The second best predictor of percentage reduction of teachers is the property valuation of the districts. Taken together, the two variables reflect the extent of teacher reductions in urban school districts in Illinois, a phenomena noted previously in several other places in this report. The third variable is interesting; since the sign of this

TABLE 19

CORRELATES OF TEACHER REDUCTION
(UNIT DISTRICTS)

R SQUARE = .29494
F = 10.099 with 7 & 169 degrees of freedom

Variable	Regression Coefficient	Beta Weight
% of Minority Population	40.99861	0.44000
Assessed Valuation Per Pupil	0.14182	0.25573
% of Families with Income Over $15,000	-18.74699	-0.18474
Tax Rate in Educational Fund	0.46275	0.17012

variable is negative, it means that the greater the percentage of families over $15,000, the less the reduction of teachers. At least two interpretations are possible. The first that comes to mind is simply that these districts with wealthier families are resisting the laying off of teachers as their pupils decline. Presumably these wealthier districts are willing to pay for a lower pupil-teacher ratio and perhaps also willing to support more administrators per teacher, although we did not explore the correlates of administrator reduction. A second possibility is that, while the first statement is true, it is occurring very largely in suburban districts, which, as we have seen elsewhere, are still showing some pupil enrollment growth. Thus the third predictor of teacher reduction may reflect the suburban influence as opposed to the urban influence of the first two variables. The fourth variable is also interesting but the findings run somewhat counter to the implications in the discriminant function section. In the discriminant function analysis, higher tax rates were associated with the greater likelihood of

being classified in the enrollment growth category. However, here the higher tax rates are associated with greater percentage reductions in teachers. The implications for finance are therefore opposite those noted in the discriminant function section, e.g., district power equalization systems, such as the one now in existence in Illinois, would flow money into the districts with the higher tax rates and concomitantly into the districts with greater teacher decline. Obviously this contradictory evidence needs further investigation. The rest of the variables used as predictors of teacher reduction were not found to be statistically significant.

Recommendations and Suggestions for Further Research

1. Since there is evidence of various sorts in this report that urban districts have been hit harder by enrollment declines and by reductions in teacher force than either suburban districts or rural districts in Illinois, and, more importantly, since there is also evidence that concentrations of Title I eligibles have increased in many school districts as pupils have declined, we recommend a change in the Title I weighting in the "resource equalizer" portion of the Illinois general purpose grant-in-aid system. At present, the school code allows a weighting of 0.375 for Title I eligibles in districts with an average concentration of Title I eligibles. We recommend that this be increased to a higher level. One possibility would be to equal the 0.450 in the older "Strayer-Haig" part of the Illinois formula. We believe that this can be defended as a response to the problem of declining enrollments in urban districts and a response to the change of clientele in these districts as enrollments decline. Perhaps this added weighting will slow the movement of middle class families from the urban areas. If additional reasons are needed for increasing the Title I weighting in the grant-in-aid formula, we would point out that there is a respectable body of evidence which suggests that programs for the socially and educationally disadvantaged

cost at least twice as much as do programs for "regular" students. (16) The present Illinois law does not allow for this much of a cost differential even for districts with the highest concentrations in the state. Of course, in the four states which use the concentration ratio method, raising the weights on the concentration of disadvantaged will also assist rural concentrations of Title I, which in Illinois are found primarily in the southern part of the state. If the Title I weighting is increased, the General Assembly may well want to reopen the question of whether these funds should be further earmarked for individual neighborhoods and concentrations of socio-economically deprived pupils within districts. At present the Illinois Title I weighting does not contain the "targeting" provisions that are used by the federal government in programs for the disadvantaged. As additional monies are put into programs for the socially and economically disadvantaged, it is not unreasonable for the legislature to require more accountability for these monies.

2. Although our evidence is not conclusive, we feel that the data of this report must at least raise the suspicion that both administrators and various types of supporting staff have not been decreased proportionately as pupil enrollments have decreased, and as regular classroom teachers have decreased. Individual districts may have made proportional reductions and, as previously mentioned, the record is better in region #4 and in urban districts. Furthermore, we have no strong a priori reason for believing that districts should reduce their administrators proportionately as teachers are reduced. A good case can be made that the reduction of administrators should be lagged. After all, closing schools and reducing staffs are administrative tasks, painful tasks, but nevertheless, administrative tasks. Still, a simple sense of justice argues that the reductions should be proportional, even if they are lagged. We therefore recommend that the Illinois Office of

Education conduct rather detailed teacher/administrator ratio studies to determine if our suspicions are well founded. The IOE may wish to either do this by means of its own within-house staff, or it may choose to contract out this research effort. In either case, the teacher/administrator ratio studies should aim toward the establishment of norms based on considerations such as size, region, type of community, etc. These norms would then enable local school boards to determine if their teacher/administrator ratios were within acceptable limits of averages for the appropriate groupings of districts.

3. Once these teacher/administrator ratio studies have attained a sufficient degree of reliability and validity, we suggest that these ratios become guidelines. If a district appears to have more administrators and supporting staff than is merited by reference to its appropriate norm group,or if a district which has been experiencing declining enrollments does not appear to have reduced its administrative personnel and supporting staff within a reasonable length of time, then the Department of Supervision and Recognition should call these descrepancies to the attention of the local board and to the attention of the appropriate Regional Superintendent of Schools. We do not feel at the present time that this matter should be the subject of prescribed and restrictive legislation or regulation. However, if a sufficient number of deviations are observed from the guidelines or if the local boards and regional superintendent of schools seem to be ignoring the guidelines, then the Illinois Office of Education might have to recommend legislation concerning "allowable" teacher/administrator ratios and "allowable" ratios for other kinds of supporting staffs.

4. Inasmuch as the evidence in this report indicates that some regions of the state are more affected by enrollment loss and teacher reduction than other regions of the state, we recommend that the Illinois Office of Education give some thought to providing assistance in the regions suffering the most from pupil decline and teacher reduction. For example, data in this report suggest that

region #4, the east-central portion of the state, merits special consideration at this time. It is beyond the scope of this study to suggest what form of assistance might be appropriate, but it might be profitable to think in terms of relocating displaced teachers and administrators from region #4 to region #1, the northeastern portion of the state, which is a part of the state still experiencing some growth in pupils and in professional staff.

5. Again, although our data is not conclusive, there is enough evidence here to suggest that careful attention should be given to "reward for effort" formulas, district power equalization, etc., so as to ascertain whether these formulas are still appropriate for a period of pupil decline, rather than a period of pupil growth. Careful attention should be given to the relationship between educational tax effort and student enrollment decline. The DPE systems are engineered to reward greater local tax efforts. Are high tax effort districts undergoing pupil growth or pupil decline? To what extent are district being forced over the guaranteed valuation levels in these DPE systems? In what regions, what community types, does this upward drift in property valuations per pupil occur most frequently? These are but some of the questions that deserve further investigation.

6. The rather great variability in pupil loss and teacher reduction suggests that examinations should be made on a case study basis of those districts undergoing severe reductions, e.g., the "tails" of our distributions should be examined. After all, we are dealing with a relatively new phenomena and we should not expect too much of archival research in such a situation. Certainly such archival research as is reported here should be supplemented by questionnaire and case study methods.

7. Lastly, we implore sociologists, economists, etc., to give us some help in constructing viable models of organizations in decline, not organizations in growth. It is of course true that theory can arise from primarily inductive

efforts such as the one reported here, but the pressing problems of student decline and personnel reduction may not be able to await such a lengthy intellectual process.

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2. Goettel, Robert J. and Robert E. Firestine, "Declining Enrollments and State Aid: Another Equity and Efficiency Problem," Journal of Education Finance, Fall, 1975.

3. Task Force, p. 14.

4. Ellsworth, David, "Declining Elementary and Secondary Enrollments in Illinois: An Overview of the Implications," 1975, Illinois Office of Education, Springfield, Illinois.

5. Task Force, p. 56.

6. See for example: Rossmiller, Richard A., James A. Hale, and Lloyd E. Frohreich, Fiscal Capacity and Educational Finance, 1970,Department of Educational Administration, University of Wisconsin, Madison, Wisconsin. For an earlier version see Peterson, Leroy J., Richard D. Rossmiller, Howard E. Wakefield and Stewart D. North, Economic Impact of State Support Models on Educational Finance, 1963, Department of Educational Administration, University of Wisconsin, Madison, Wisconsin.

7. See: Hickrod, G. Alan, Ben C. Hubbard, and Thomas W. Yang, "The 1973 Reform of the Illinois General Purpose Educational Grant-in-Aid," in Tron, Esther (ed.), Selected Papers in School Finance, 1974, U. S. Department of Health, Education, and Welfare, Washington, D. C.; this monograph is also available directly from the Center for the Study of Educational Finance, Department of Educational Administration, Illinois State University, Normal, Illinois 61761, at a cost of $2.50. See also: Hickrod, G. Alan, Thomas W. Yang, Ben C. Hubbard, and Ramesh Chaudhari, "Measurable Objectives for School Finance Reform: A Further Evaluation of the Illinois School Finance Reforms of 1973," a paper presented to the 1975 Annual Meeting of the American Educational Research Association, Washington, D. C. (available now as document ED 103 977 in the ERIC document reproduction service, P.O. Box 190, Arlington, Virginia 22210, at a cost of $0.76 in microfiche and $3.32 in hardbound.)

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10. McLure, William P., Robert A. Burnham, and Robert A. Henderson, Special Education: Needs, Costs, Methods of Financing, 1975, Bureau of Educational Research, University of Illinois at Urbana, Urbana, Illinois.

11. Goettel and Firestine, op. cit.

12. Basically our findings do give some support to James S. Coleman's controversial "white flight" thesis. However, we do not have enough evidence here to enter the lists of this rather complicated debate. For background see the October 1975, February 1976, and March 1976 issues of Phi Delta Kappan. The debate is between Robert Green and Thomas Pettigrew vs. James S. Coleman.

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Chart I: Enrollment Changes in Illinois 1970-71 to 1974-75

	Unit Districts	Elementary Districts
+25%	3	25
+20-25%	5	5
+15-20%	4	16
+10-15%	18	13
+5-10%	33	39
+0-5%	Excluded	Excluded
-0-5%	Excluded	Excluded
-5-10%	95	66
-10-15%	49	61
-15-20%	28	59
-20-25%	0	24
-25%	2	25

+ Bars

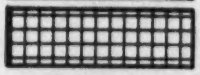
- Bars 

Chart II: Declining Enrollment in Unit Districts 1970-71 to 1974-75

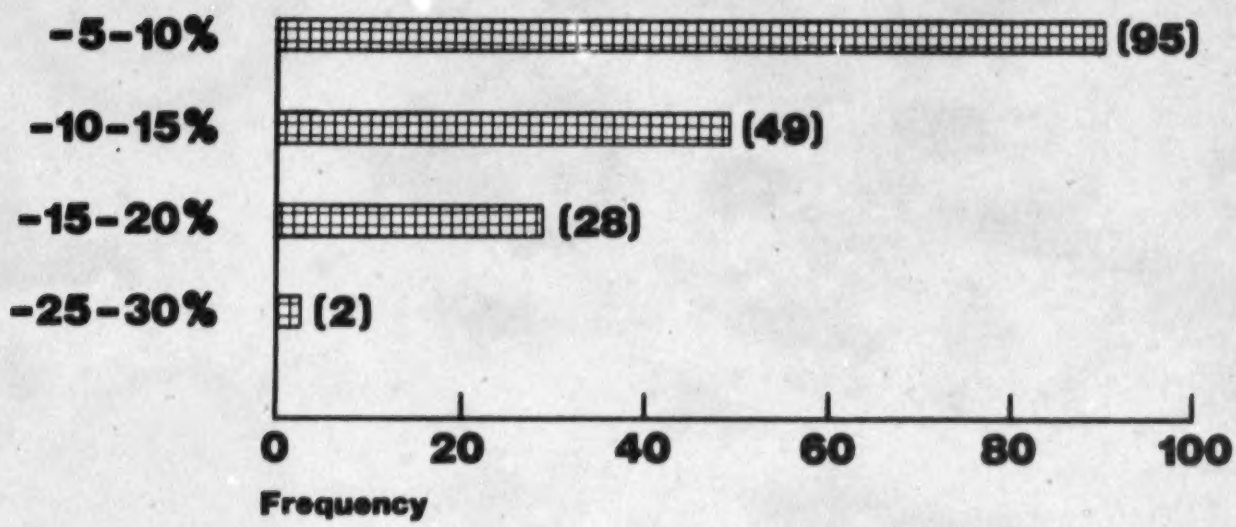


Chart III: Percentage Change in FTE Teachers
Unit Districts with Declining Enrollments
1969-70 to 1973-74

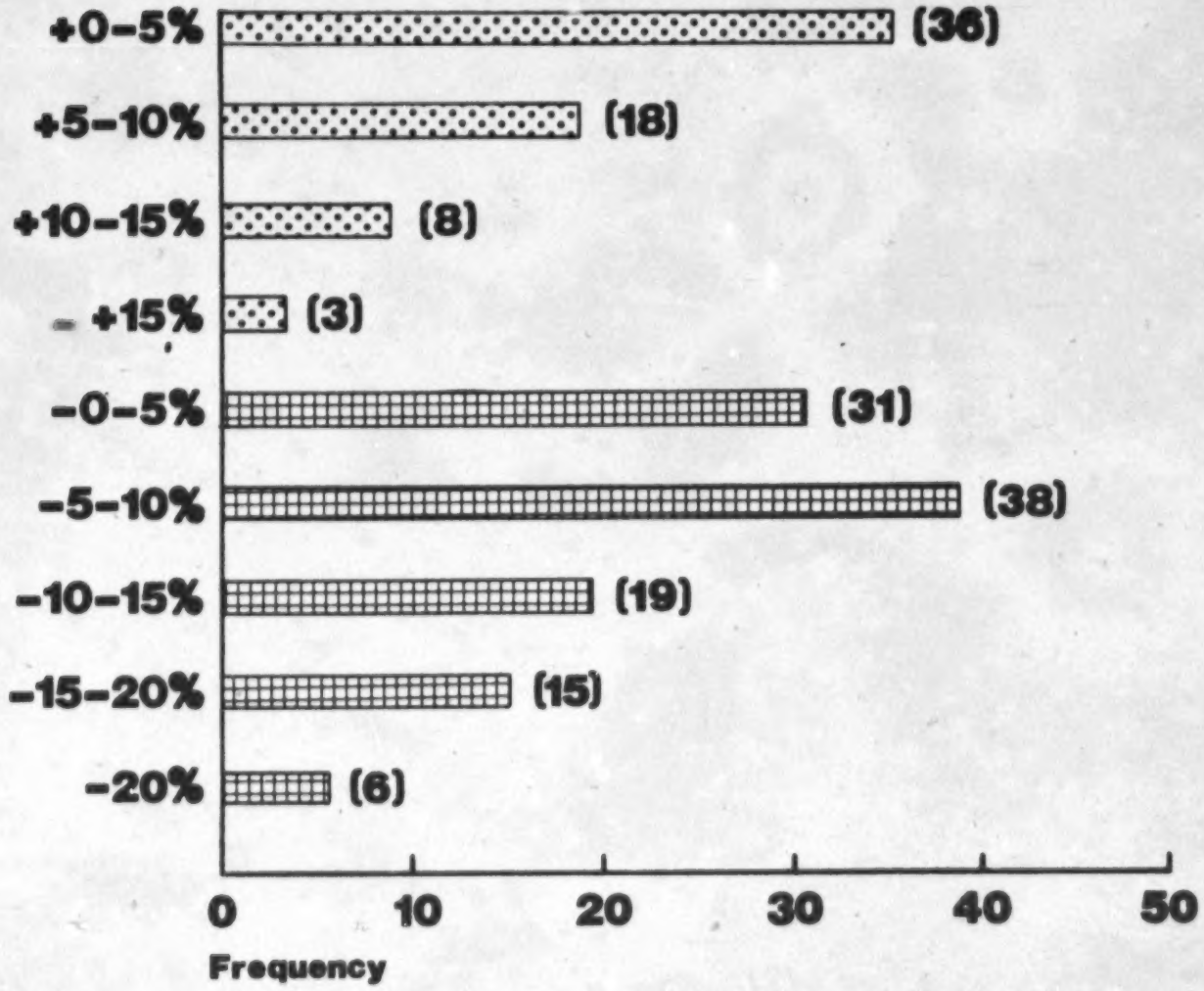


Chart IV: Percentage Change in Administrators Unit Districts with Declining Enrollments 1969-70 to 1973-74

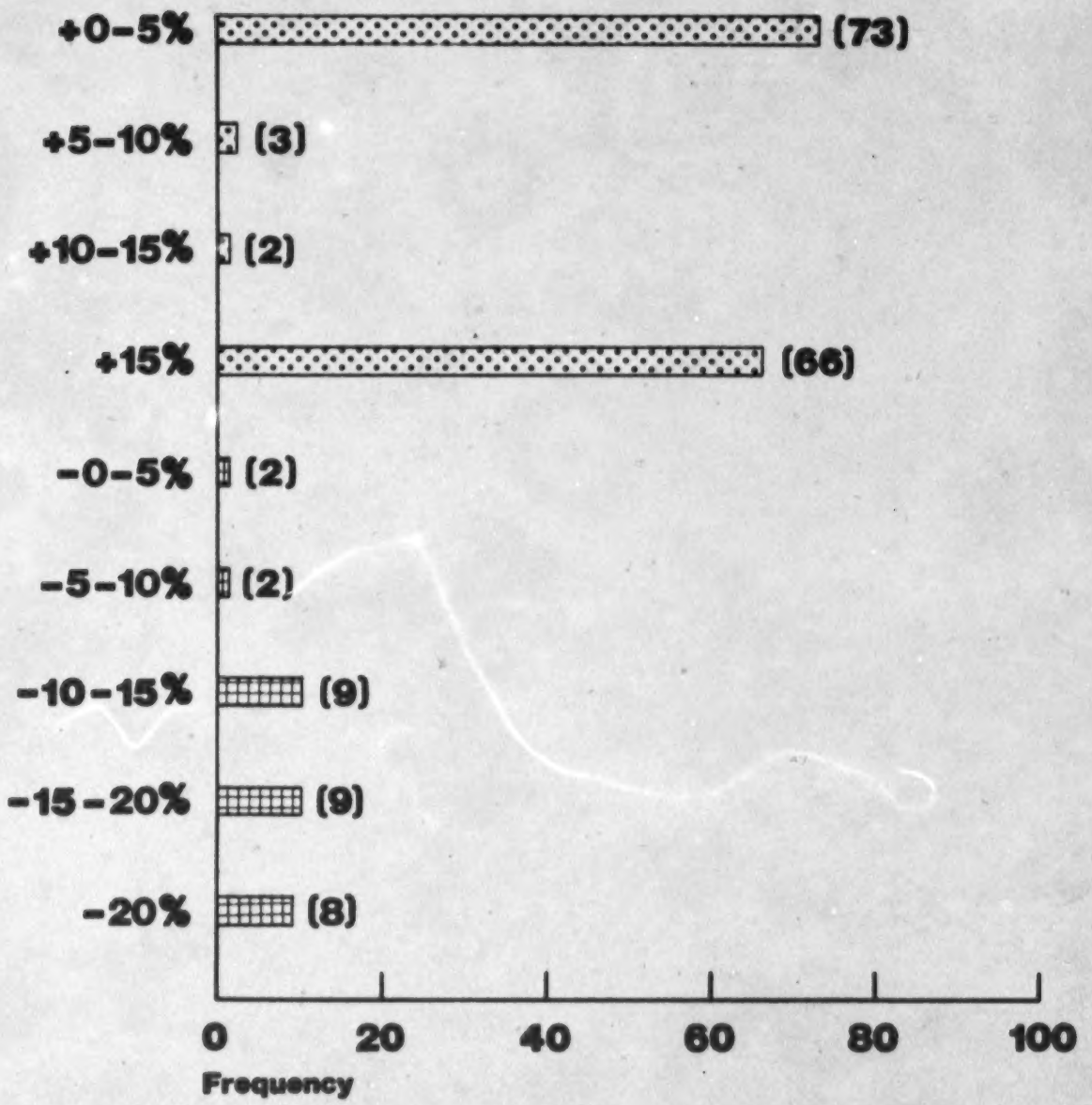


Chart V: Percentage Change in Special Teachers
Unit Districts with Declining Enrollments
1969-70 to 1973-73

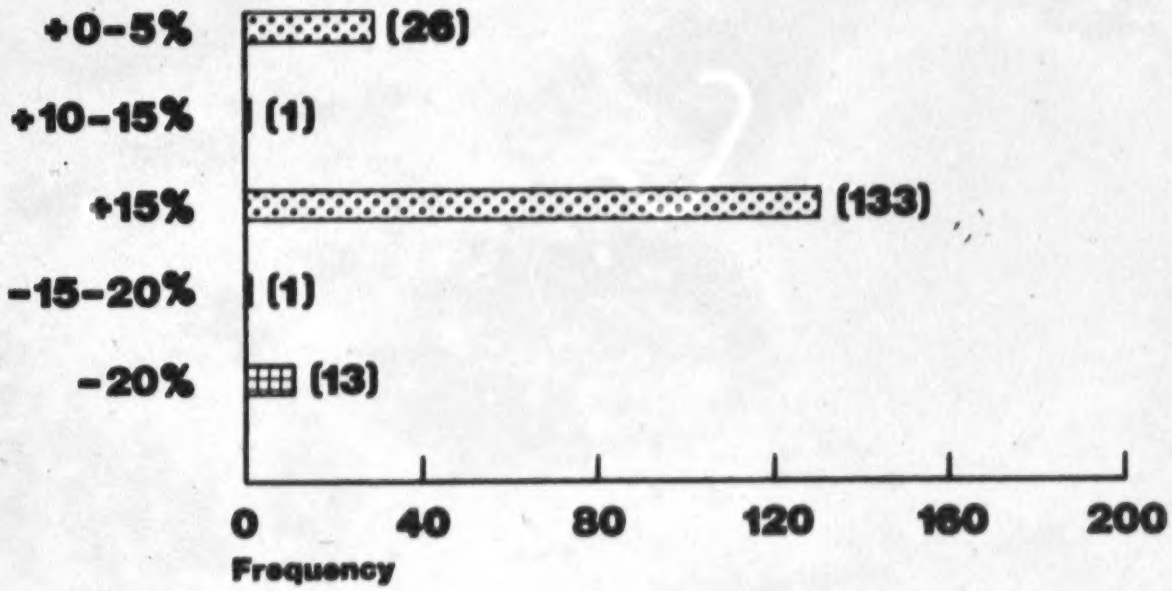


Chart VI: Declining Enrollment in Elementary Districts 1970-71 to 1974-75

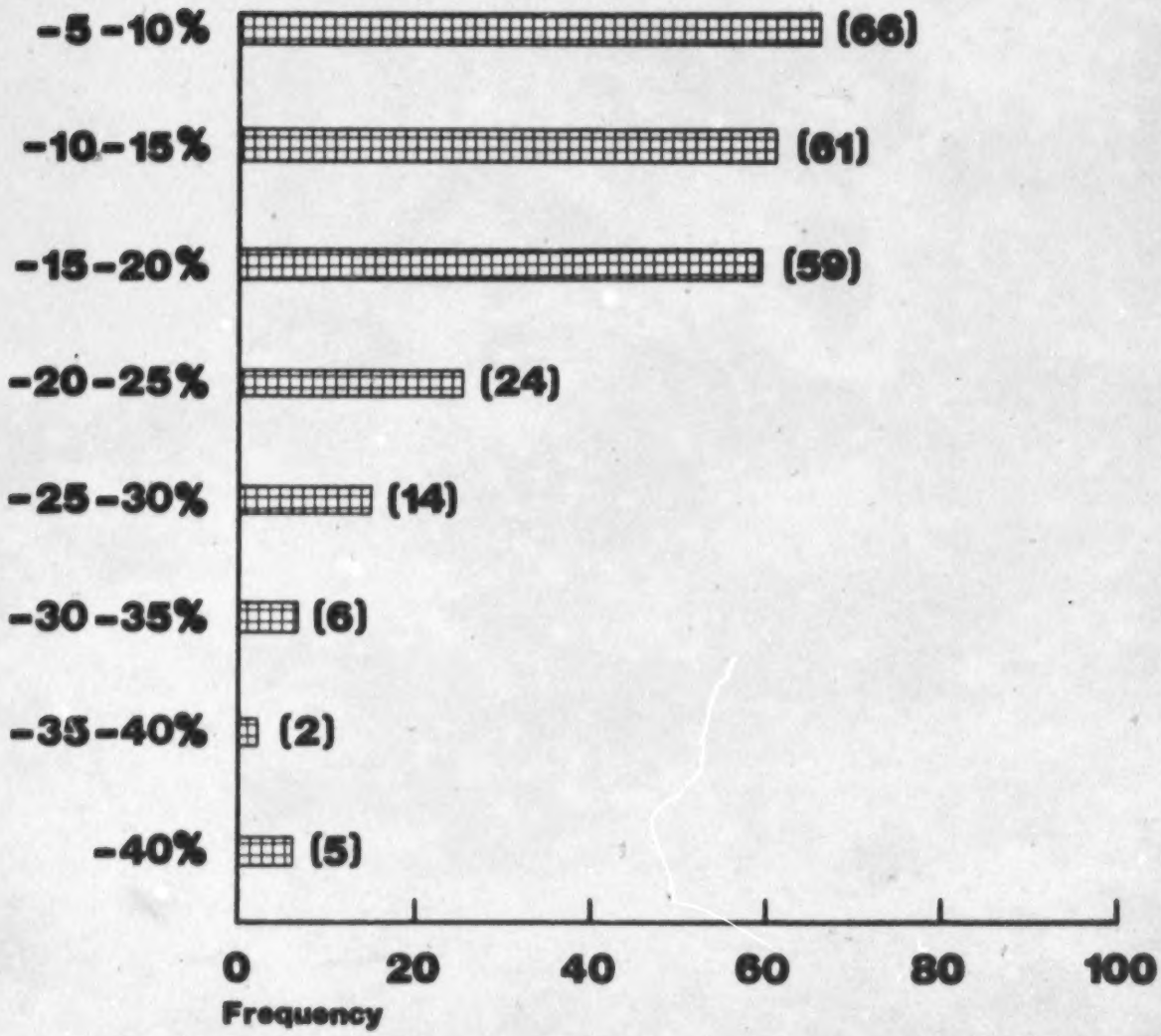


Chart VII: Percentage Change in FTE Teachers Elementary Districts with Declining Enrollments 1969-70 to 1973-74

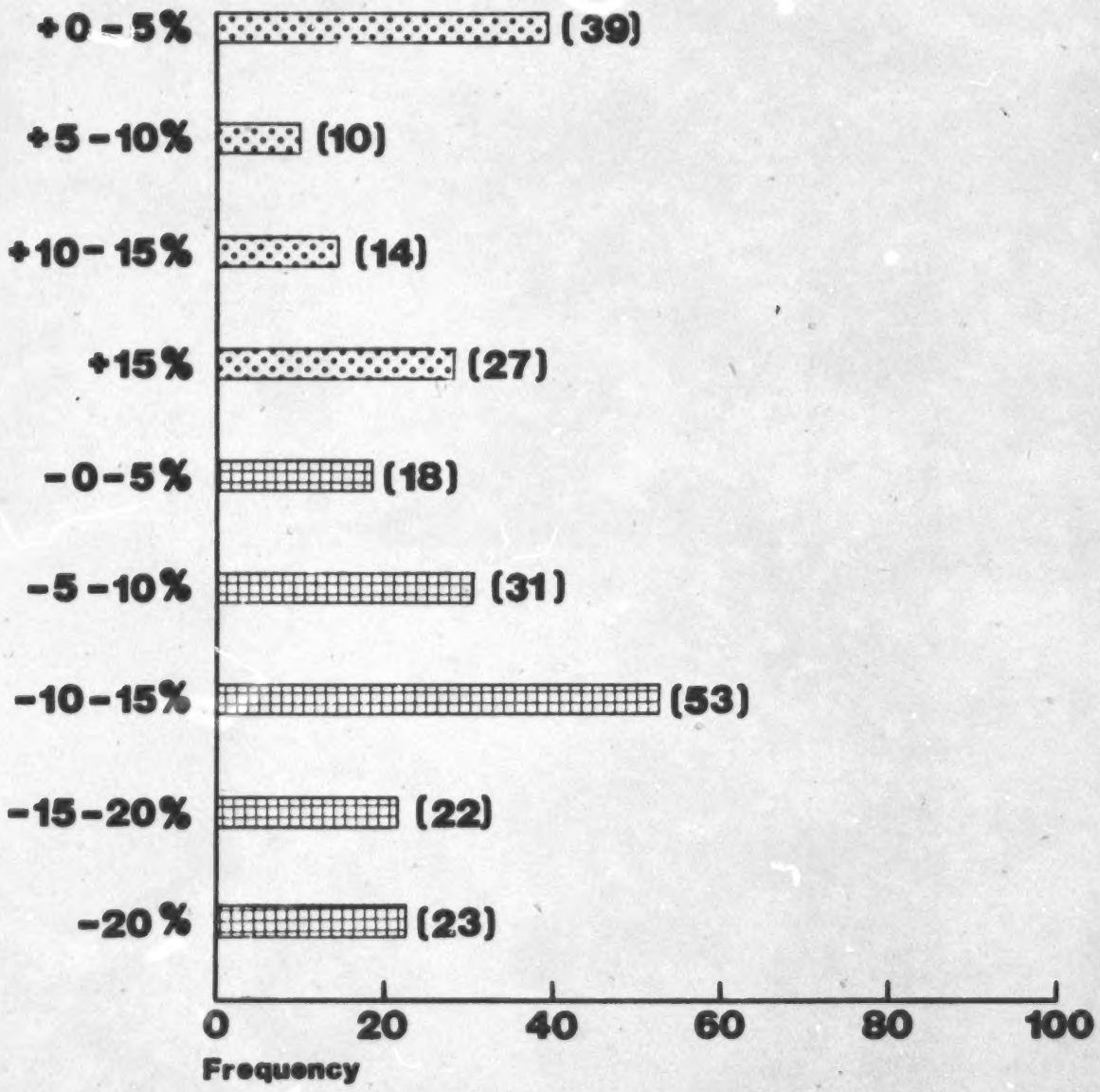


Chart VIII: Percentage Change in Administrators Elementary Districts with Declining Enrollments 1969-70 to 1973-74

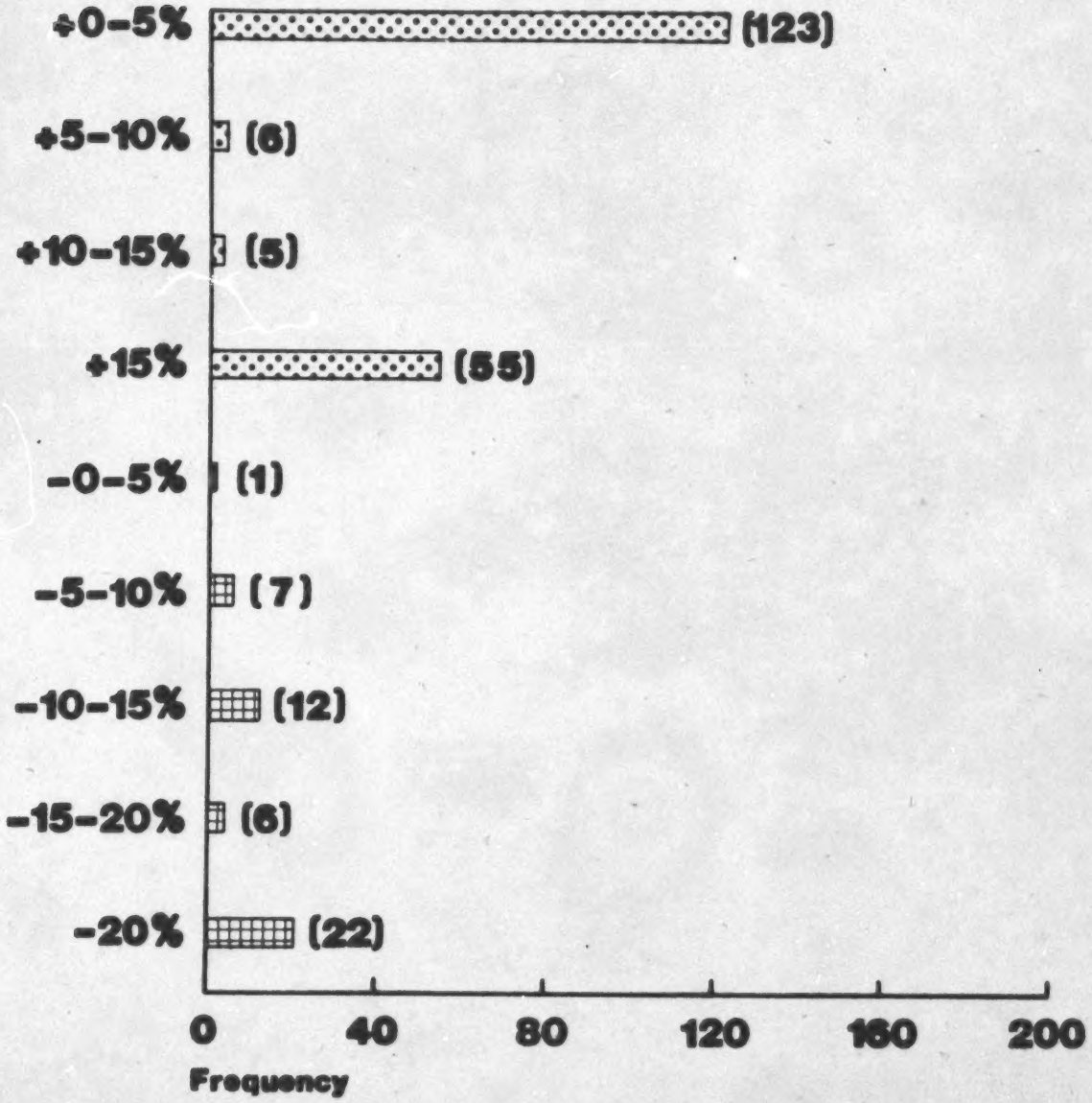


Chart IX: Percentage Change in Special Teachers Elementary Districts with Declining Enrollments 1969-70 to 1973-74